

[illegible]

FIG. 1

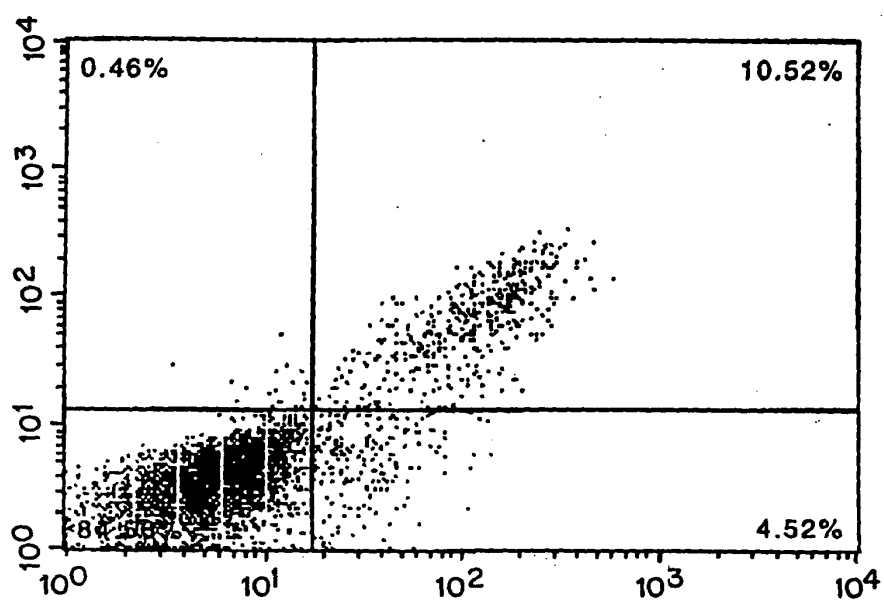


FIG. 2

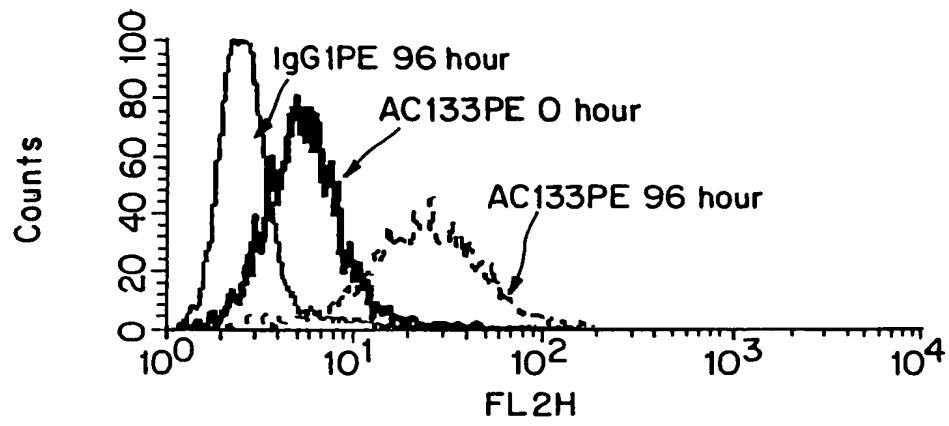


FIG. 3

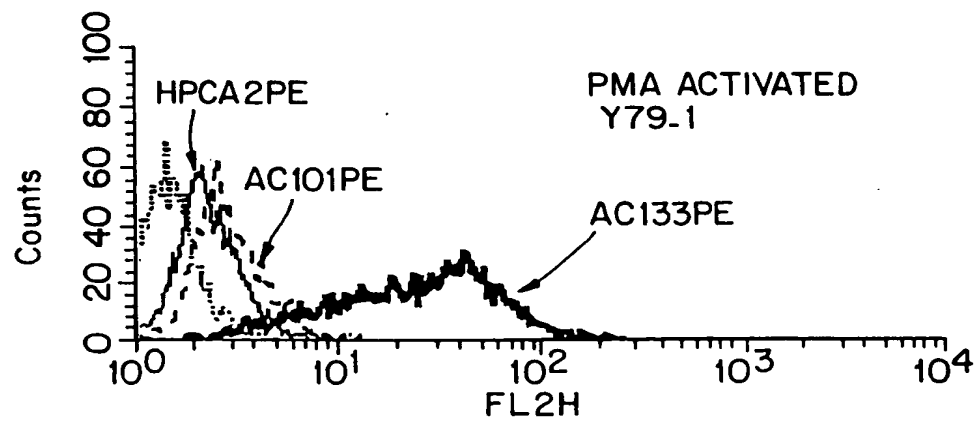




FIG.5A

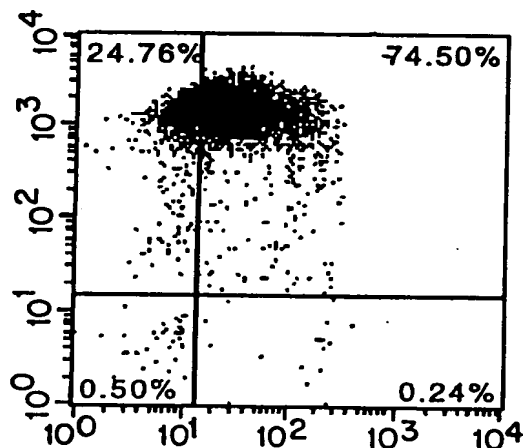


FIG.5B

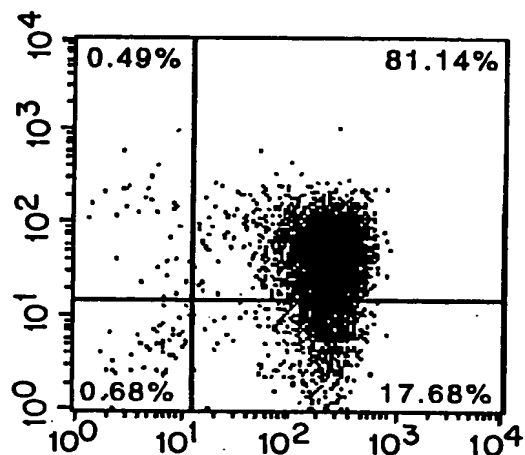


FIG.5C

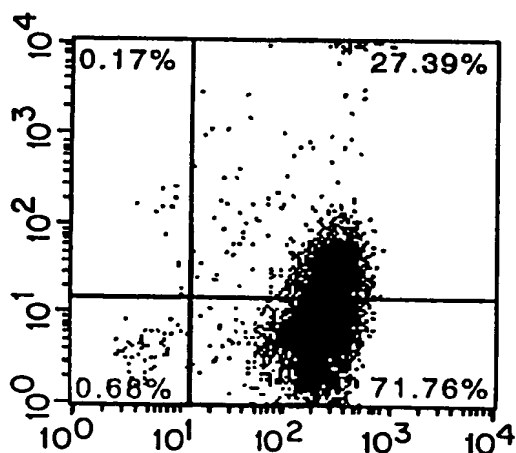


FIG.5D

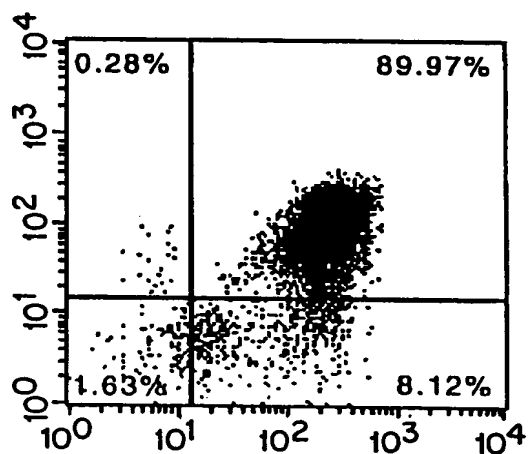


FIG.6

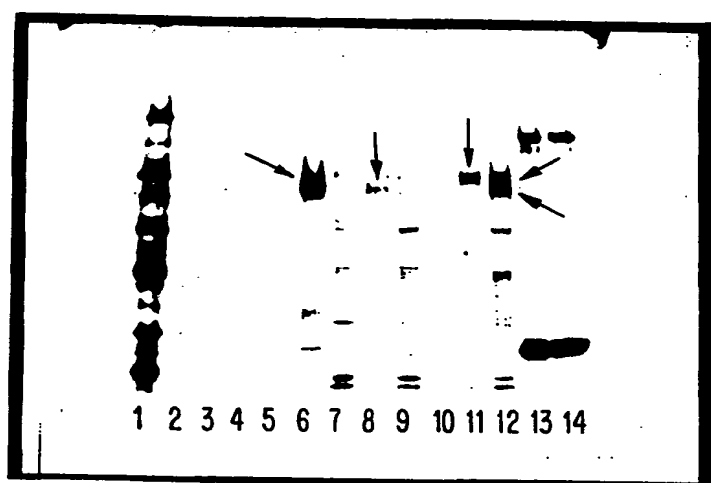


FIG. 7A

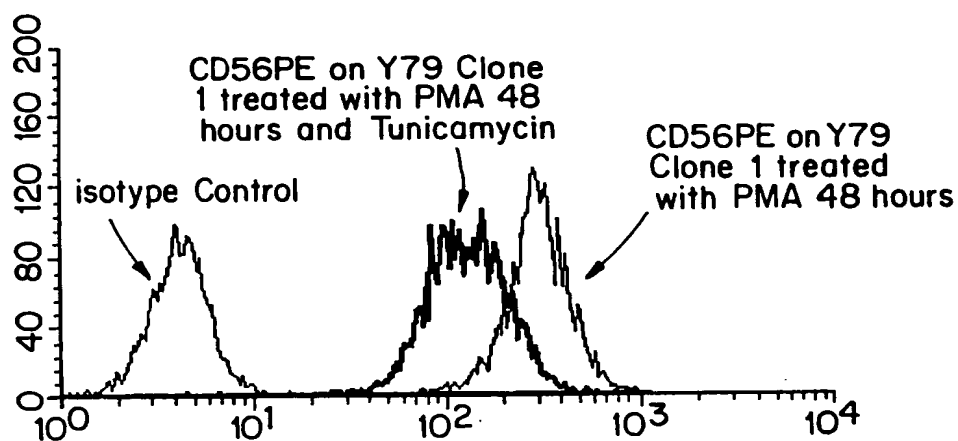


FIG. 7B

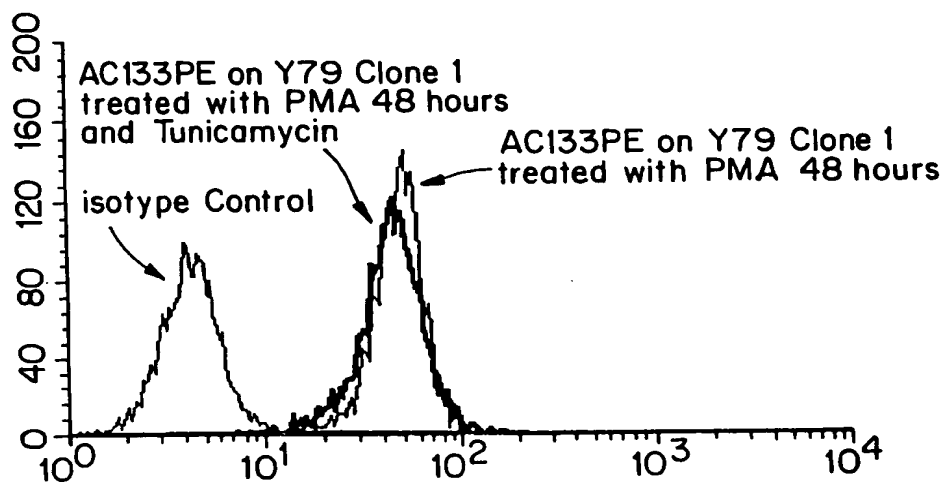


FIG.8

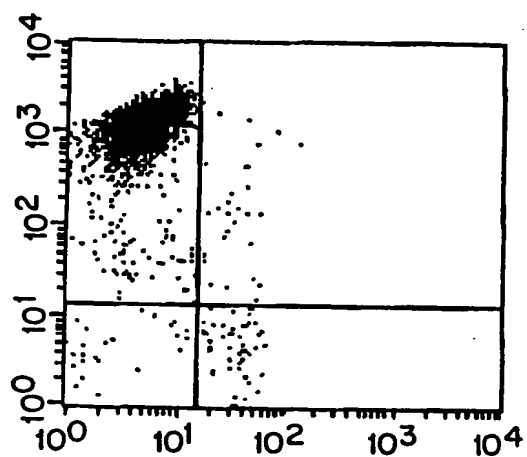


FIG.9A

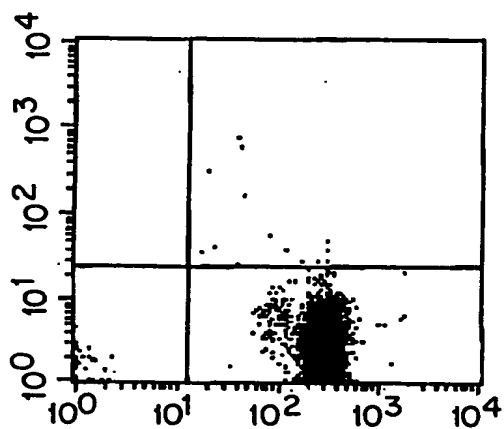


FIG.9B

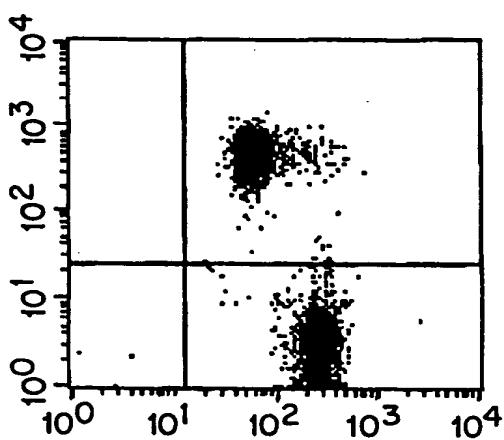
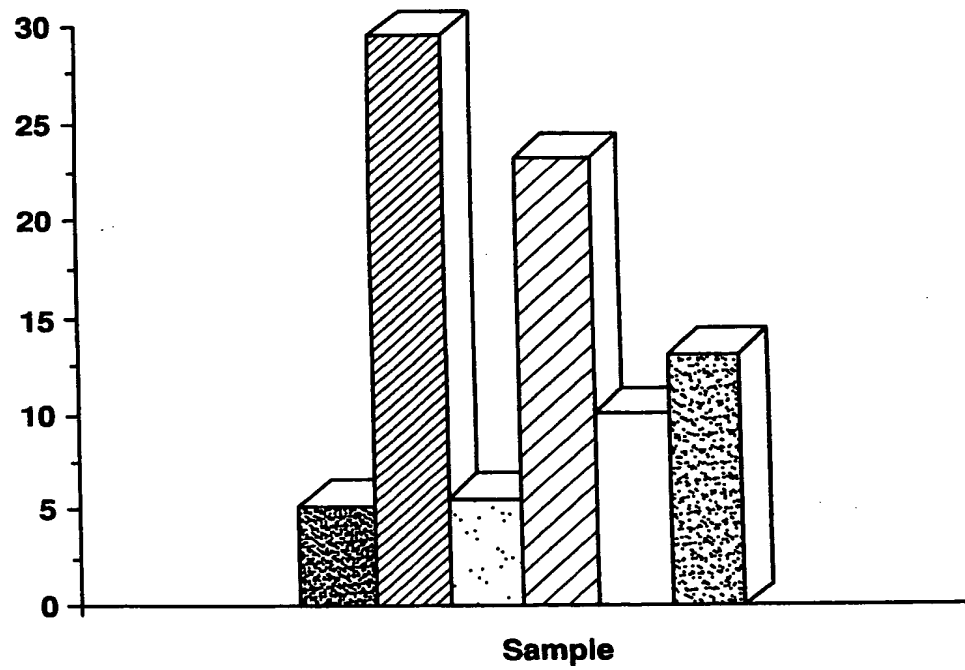


FIG.10



- LP Control/CFU-GM
- ▨ LP Control/BFU-E
- ▤ C4-AC101/CFU-GM
- ▧ C4-AC101/BFU-E
- C4-AC133/CFU-GM
- ▩ C4-AC133/BFU-E

FIG.11

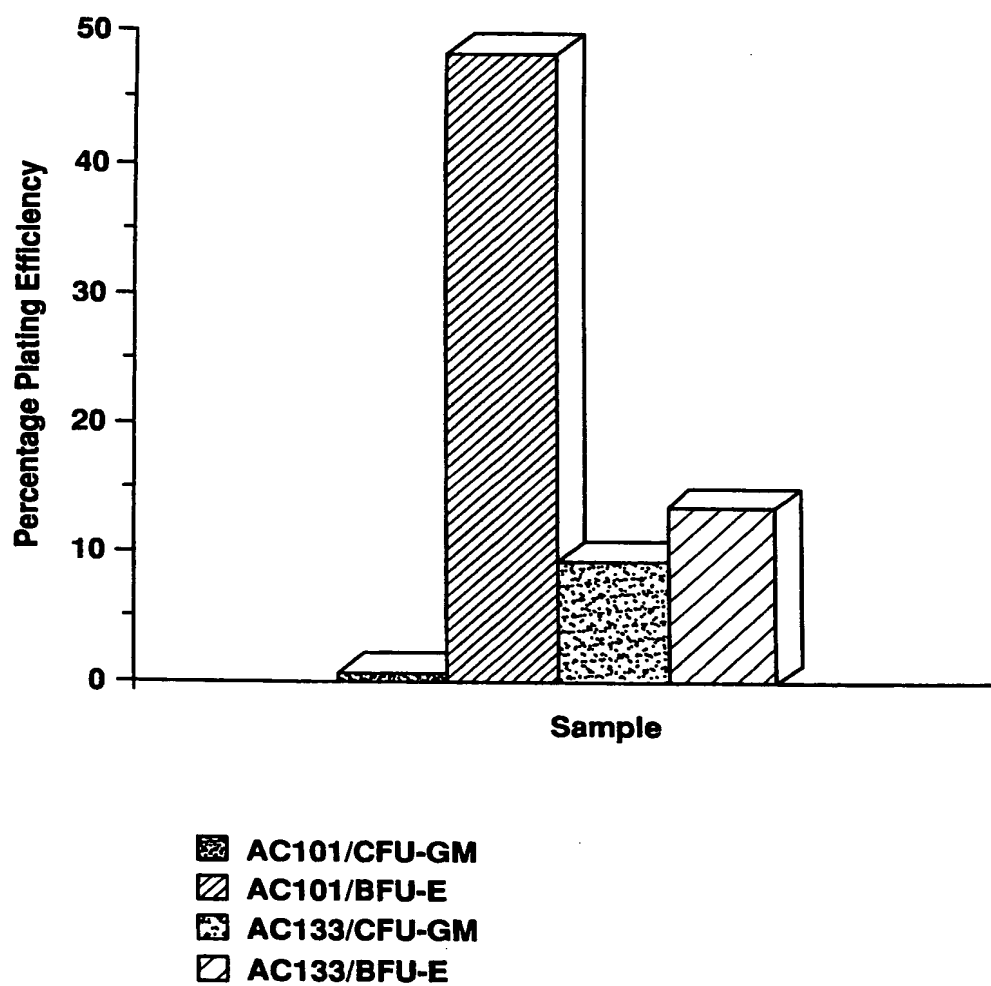


FIG.12 -1

CCAAGTTCTA CCTCATGTTT GGAGGATCTT GCTAGCT	ATG GCC CTC GTA CTC GGC	55
	Met Ala Leu Val Leu Gly	
	1 5	
TCC CTG TTG CTG CTG GGG CTG TGC GGG AAC TCC TTT TCA GGA GGG CAG		103
Ser Leu Leu Leu Leu Gly Leu Cys Gly Asn Ser Phe Ser Gly Gly Gln		
	10 15 20	
CCT TCA TCC ACA GAT GCT CCT AAG GCT TGG AAT TAT GAA TTG CCT GCA		151
Pro Ser Ser Thr Asp Ala Pro Lys Ala Trp Asn Tyr Glu Leu Pro Ala		
	25 30 35	
ACA AAT TAT GAG ACC CAA GAC TCC CAT AAA GCT GGA CCC ATT GGC ATT		199
Thr Asn Tyr Glu Thr Gln Asp Ser His Lys Ala Gly Pro Ile Gly Ile		
	40 45 50	
CTC TTT GAA CTA GTG CAT ATC TTT CTC TAT GTG GTA CAG CCG CGT GAT		247
Leu Phe Glu Leu Val His Ile Phe Leu Tyr Val Val Gln Pro Arg Asp		
	55 60 65 70	
TTC CCA GAA GAT ACT TTG AGA AAA TTC TTA CAG AAG GCA TAT GAA TCC		295
Phe Pro Glu Asp Thr Leu Arg Lys Phe Leu Gln Lys Ala Tyr Glu Ser		
	75 80 85	
AAA ATT GAT TAT GAC AAG CCA GAA ACT GTA ATC TTA GGT CTA AAG ATT		343
Lys Ile Asp Tyr Asp Lys Pro Glu Thr Val Ile Leu Gly Leu Lys Ile		
	90 95 100	
GTC TAC TAT GAA GCA GGG ATT ATT CTA TGC TGT GTC CTG GGG CTG CTG		391
Val Tyr Tyr Glu Ala Gly Ile Ile Leu Cys Cys Val Leu Gly Leu Leu		
	105 110 115	
TTT ATT ATT CTG ATG CCT CTG GTG GGG TAT TTC TTT TGT ATG TGT CGT		439
Phe Ile Ile Leu Met Pro Leu Val Gly Tyr Phe Phe Cys Met Cys Arg		
	120 125 130	
TGC TGT AAC AAA TGT GGT GGA GAA ATG CAC CAG CGA CAG AAG GAA AAT		487
Cys Cys Asn Lys Cys Gly Gly Glu Met His Gln Arg Gln Lys Glu Asn		
	135 140 145 150	
GGG CCC TTC CTG AGG AAA TGC TTT GCA ATC TCC CTG TTG GTG ATT TGT		535
Gly Pro Phe Leu Arg Lys Cys Phe Ala Ile Ser Leu Leu Val Ile Cys		
	155 160 165	
ATA ATA ATA AGC ATT GGC ATC TTC TAT GGT TTT GTG GCA AAT CAC CAG		583
Ile Ile Ile Ser Ile Gly Ile Phe Tyr Gly Phe Val Ala Asn His Gln		
	170 175 180	
GTA AGA ACC CGG ATC AAA AGG AGT CGG AAA CTG GCA GAT AGC AAT TTC		631
Val Arg Thr Arg Ile Lys Arg Ser Arg Lys Leu Ala Asp Ser Asn Phe		
	185 190 195	
AAG GAC TTG CGA ACT CTC TTG AAT GAA ACT CCA GAG CAA ATC AAA TAT		679
Lys Asp Leu Arg Thr Leu Leu Asn Glu Thr Pro Glu Gln Ile Lys Tyr		
	200 205 210	
ATA TTG GCC CAG TAC AAC ACT ACC AAG GAC AAG GCG TTC ACA GAT CTG		727
Ile Leu Ala Gln Tyr Asn Thr Thr Lys Asp Lys Ala Phe Thr Asp Leu		
	215 220 225 230	

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1955-1956 1956-1957 1957-1958 1958-1959 1959-1960 1960-1961 1961-1962 1962-1963 1963-1964 1964-1965 1965-1966 1966-1967 1967-1968 1968-1969 1969-1970 1970-1971 1971-1972 1972-1973 1973-1974 1974-1975 1975-1976 1976-1977 1977-1978 1978-1979 1979-1980 1980-1981 1981-1982 1982-1983 1983-1984 1984-1985 1985-1986 1986-1987 1987-1988 1988-1989 1989-1990 1990-1991 1991-1992 1992-1993 1993-1994 1994-1995 1995-1996 1996-1997 1997-1998 1998-1999 1999-2000 2000-2001 2001-2002 2002-2003 2003-2004 2004-2005 2005-2006 2006-2007 2007-2008 2008-2009 2009-2010 2010-2011 2011-2012 2012-2013 2013-2014 2014-2015 2015-2016 2016-2017 2017-2018 2018-2019 2019-2020 2020-2021 2021-2022 2022-2023 2023-2024 2024-2025 2025-2026 2026-2027 2027-2028 2028-2029 2029-2030 2030-2031 2031-2032 2032-2033 2033-2034 2034-2035 2035-2036 2036-2037 2037-2038 2038-2039 2039-2040 2040-2041 2041-2042 2042-2043 2043-2044 2044-2045 2045-2046 2046-2047 2047-2048 2048-2049 2049-2050 2050-2051 2051-2052 2052-2053 2053-2054 2054-2055 2055-2056 2056-2057 2057-2058 2058-2059 2059-2060 2060-2061 2061-2062 2062-2063 2063-2064 2064-2065 2065-2066 2066-2067 2067-2068 2068-2069 2069-2070 2070-2071 2071-2072 2072-2073 2073-2074 2074-2075 2075-2076 2076-2077 2077-2078 2078-2079 2079-2080 2080-2081 2081-2082 2082-2083 2083-2084 2084-2085 2085-2086 2086-2087 2087-2088 2088-2089 2089-2090 2090-2091 2091-2092 2092-2093 2093-2094 2094-2095 2095-2096 2096-2097 2097-2098 2098-2099 2099-2100 2100-2101 2101-2102 2102-2103 2103-2104 2104-2105 2105-2106 2106-2107 2107-2108 2108-2109 2109-2110 2110-2111 2111-2112 2112-2113 2113-2114 2114-2115 2115-2116 2116-2117 2117-2118 2118-2119 2119-2120 2120-2121 2121-2122 2122-2123 2123-2124 2124-2125 2125-2126 2126-2127 2127-2128 2128-2129 2129-2130 2130-2131 2131-2132 2132-2133 2133-2134 2134-2135 2135-2136 2136-2137 2137-2138 2138-2139 2139-2140 2140-2141 2141-2142 2142-2143 2143-2144 2144-2145 2145-2146 2146-2147 2147-2148 2148-2149 2149-2150 2150-2151 2151-2152 2152-2153 2153-2154 2154-2155 2155-2156 2156-2157 2157-2158 2158-2159 2159-2160 2160-2161 2161-2162 2162-2163 2163-2164 2164-2165 2165-2166 2166-2167 2167-2168 2168-2169 2169-2170 2170-2171 2171-2172 2172-2173 2173-2174 2174-2175 2175-2176 2176-2177 2177-2178 2178-2179 2179-2180 2180-2181 2181-2182 2182-2183 2183-2184 2184-2185 2185-2186 2186-2187 2187-2188 2188-2189 2189-2190 2190-2191 2191-2192 2192-2193 2193-2194 2194-2195 2195-2196 2196-2197 2197-2198 2198-2199 2199-2200 2200-2201 2201-2202 2202-2203 2203-2204 2204-2205 2205-2206 2206-2207 2207-2208 2208-2209 2209-2210 2210-2211 2211-2212 2212-2213 2213-2214 2214-2215 2215-2216 2216-2217 2217-2218 2218-2219 2219-2220 2220-2221 2221-2222 2222-2223 2223-2224 2224-2225 2225-2226 2226-2227 2227-2228 2228-2229 2229-2230 2230-2231 2231-2232 2232-2233 2233-2234 2234-2235 2235-2236 2236-2237 2237-2238 2238-2239 2239-2240 2240-2241 2241-2242 2242-2243 2243-2244 2244-2245 2245-2246 2246-2247 2247-2248 2248-2249 2249-2250 2250-2251 2251-2252 2252-2253 2253-2254 2254-2255 2255-2256 2256-2257 2257-2258 2258-2259 2259-2260 2260-2261 2261-2262 2262-2263 2263-2264 2264-2265 2265-2266 2266-2267 2267-2268 2268-2269 2269-2270 2270-2271 2271-2272 2272-2273 2273-2274 2274-2275 2275-2276 2276-2277 2277-2278 2278-2279 2279-2280 2280-2281 2281-2282 2282-2283 2283-2284 2284-2285 2285-2286 2286-2287 2287-2288 2288-2289 2289-2290 2290-2291 2291-2292 2292-2293 2293-2294 2294-2295 2295-2296 2296-2297 2297-2298 2298-2299 2299-2300 2300-2301 2301-2302 2302-2303 2303-2304 2304-2305 2305-2306 2306-2307 2307-2308 2308-2309 2309-2310 2310-2311 2311-2312 2312-2313 2313-2314 2314-2315 2315-2316 2316-2317 2317-2318 2318-2319 2319-2320 2320-2321 2321-2322 2322-2323 2323-2324 2324-2325 2325-2326 2326-2327 2327-2328 2328-2329 2329-2330 2330-2331 2331-2332 2332-2333 2333-2334 2334-2335 2335-2336 2336-2337 2337-2338 2338-2339 2339-2340 2340-2341 2341-2342 2342-2343 2343-2344 2344-2345 2345-2346 2346-2347 2347-2348 2348-2349 2349-2350 2350-2351 2351-2352 2352-2353 2353-2354 2354-2355 2355-2356 2356-2357 2357-2358 2358-2359 2359-2360 2360-2361 2361-2362 2362-2363 2363-2364 2

AAC	AGT	ATC	AAT	TCA	GTG	CTA	GGA	GGC	GGA	ATT	CTT	GAC	CGA	CTG	AGA	775
Asn	Ser	Ile	Asn	Ser	Val	Leu	Gly	Gly	Gly	Ile	Leu	Asp	Arg	Leu	Arg	
			235						240					245		
CCC	AAC	ATC	ATC	CCT	GTT	CTT	GAT	GAG	ATT	AAG	TCC	ATG	GCA	ACA	GCG	823
Pro	Asn	Ile	Ile	Pro	Val	Leu	Asp	Glu	Ile	Lys	Ser	Met	Ala	Thr	Ala	
			250					255					260			
ATC	AAG	GAG	ACC	AAA	GAG	GCG	TTG	GAG	AAC	ATG	AAC	AGC	ACC	TTG	AAG	871
Ile	Lys	Glu	Thr	Lys	Glu	Ala	Leu	Glu	Asn	Met	Asn	Ser	Thr	Leu	Lys	
		265					270					275				
AGC	TTG	CAC	CAA	CAA	AGT	ACA	CAG	CTT	AGC	AGC	AGT	CTG	ACC	AGC	GTG	919
Ser	Leu	His	Gln	Gln	Ser	Thr	Gln	Leu	Ser	Ser	Ser	Leu	Thr	Ser	Val	
	280					285					290					
AAA	ACT	AGC	CTG	CGG	TCA	TCT	CTC	AAT	GAC	CCT	CTG	TGC	TTG	GTG	CAT	967
Lys	Thr	Ser	Leu	Arg	Ser	Ser	Leu	Asn	Asp	Pro	Leu	Cys	Leu	Val	His	
295				300						305				310		
CCA	TCA	AGT	GAA	ACC	TGC	AAC	AGC	ATC	AGA	TTG	TCT	CTA	AGC	CAG	CTG	1015
Pro	Ser	Ser	Glu	Thr	Cys	Asn	Ser	Ile	Arg	Leu	Ser	Leu	Ser	Gln	Leu	
				315					320					325		
AAT	AGC	AAC	CCT	GAA	CTG	AGG	CAG	CTT	CCA	CCC	GTG	GAT	GCA	GAA	CTT	1063
Asn	Ser	Asn	Pro	Glu	Leu	Arg	Gln	Leu	Pro	Pro	Val	Asp	Ala	Glu	Leu	
			330					335					340			
GAC	AAC	GTT	AAT	AAC	GTT	CTT	AGG	ACA	GAT	TTG	GAT	GGC	CTG	GTC	CAA	1111
Asp	Asn	Val	Asn	Asn	Val	Leu	Arg	Thr	Asp	Leu	Asp	Gly	Leu	Val	Gln	
		345					350					355				
CAG	GGC	TAT	CAA	TCC	CTT	AAT	GAT	ATA	CCT	GAC	AGA	GTA	CAA	CGC	CAA	1159
Gln	Gly	Tyr	Gln	Ser	Leu	Asn	Asp	Ile	Pro	Asp	Arg	Val	Gln	Arg	Gln	
	360					365					370					
ACC	ACG	ACT	GTC	GTA	GCA	GGT	ATC	AAA	AGG	GTC	TTG	AAT	TCC	ATT	GGT	1207
Thr	Thr	Thr	Val	Val	Ala	Gly	Ile	Lys	Arg	Val	Leu	Asn	Ser	Ile	Gly	
375				380						385				390		
TCA	GAT	ATC	GAC	AAT	GTA	ACT	CAG	CGT	CTT	CCT	ATT	CAG	GAT	ATA	CTC	1255
Ser	Asp	Ile	Asp	Asn	Val	Thr	Gln	Arg	Leu	Pro	Ile	Gln	Asp	Ile	Leu	
				395					400					405		
TCA	GCA	TTC	TCT	GTT	TAT	GTT	AAT	AAC	ACT	GAA	AGT	TAC	ATC	CAC	AGA	1303
Ser	Ala	Phe	Ser	Val	Tyr	Val	Asn	Asn	Thr	Glu	Ser	Tyr	Ile	His	Arg	
			410				415						420			
AAT	TTA	CCT	ACA	TTG	GAA	GAG	TAT	GAT	TCA	TAC	TGG	TGG	CTG	GGT	GGC	1351
Asn	Leu	Pro	Thr	Leu	Glu	Glu	Tyr	Asp	Ser	Tyr	Trp	Trp	Leu	Gly	Gly	
		425					430					435				
CTG	GTC	ATC	TGC	TCT	CTG	CTG	ACC	CTC	ATC	GTG	ATT	TTT	TAC	TAC	CTG	1399
Leu	Val	Ile	Cys	Ser	Leu	Leu	Thr	Leu	Ile	Val	Ile	Phe	Tyr	Tyr	Leu	
	440					445				450						
GGC	TTA	CTG	TGT	GGC	GTG	TGC	GGC	TAT	GAC	AGG	CAT	GCC	ACC	CCG	ACC	1447
Gly	Leu	Leu	Cys	Gly	Val	Cys	Gly	Tyr	Asp	Arg	His	Ala	Thr	Pro	Thr	
455				460						465					470	

FIG.12-3

ACC CGA GGC TGT GTC TCC AAC ACC GGA GGC GTC TTC CTC ATG GTT GGA Thr Arg Gly Cys Val Ser Asn Thr Gly Gly Val Phe Leu Met Val Gly	1495
475 480 485	
GTT GGA TTA AGT TTC CTC TTT TGC TGG ATA TTG ATG ATC ATT GTG GTT Val Gly Leu Ser Phe Leu Phe Cys Trp Ile Leu Met Ile Ile Val Val	1543
490 495 500	
CTT ACC TTT GTC TTT GGT GCA AAT GTG GAA AAA CTG ATC TGT GAA CCT Leu Thr Phe Val Phe Gly Ala Asn Val Glu Lys Leu Ile Cys Glu Pro	1591
505 510 515	
TAC ACG AGC AAG GAA TTA TTC CGG GTT TTG GAT ACA CCC TAC TTA CTA Tyr Thr Ser Lys Glu Leu Phe Arg Val Leu Asp Thr Pro Tyr Leu Leu	1639
520 525 530	
AAT GAA GAC TGG GAA TAC TAT CTC TCT GGG AAG CTA TTT AAT AAA TCA Asn Glu Asp Trp Glu Tyr Tyr Leu Ser Gly Lys Leu Phe Asn Lys Ser	1687
535 540 545 550	
AAA ATG AAG CTC ACT TTT GAA CAA GTT TAC AGT GAC TGC AAA AAA AAT Lys Met Lys Leu Thr Phe Glu Gln Val Tyr Ser Asp Cys Lys Lys Asn	1735
555 560 565	
AGA GGC ACT TAC GGC ACT CTT CAC CTG CAG AAC AGC TTC AAT ATC AGT Arg Gly Thr Tyr Gly Thr Leu His Leu Gln Asn Ser Phe Asn Ile Ser	1783
570 575 580	
GAA CAT CTC AAC ATT AAT GAG CAT ACT GGA AGC ATA AGC AGT GAA TTG Glu His Leu Asn Ile Asn Glu His Thr Gly Ser Ile Ser Ser Glu Leu	1831
585 590 595	
GAA AGT CTG AAG GTA AAT CTT AAT ATC TTT CTG TTG GGT GCA GCA GGA Glu Ser Leu Lys Val Asn Leu Asn Ile Phe Leu Leu Gly Ala Ala Gly	1879
600 605 610	
AGA AAA AAC CTT CAG GAT TTT GCT GCT TGT GGA ATA GAC AGA ATG AAT Arg Lys Asn Leu Gln Asp Phe Ala Ala Cys Gly Ile Asp Arg Met Asn	1927
615 620 625 630	
TAT GAC AGC TAC TTG GCT CAG ACT GGT AAA TCC CCC GCA GGA GTG AAT Tyr Asp Ser Tyr Leu Ala Gln Thr Gly Lys Ser Pro Ala Gly Val Asn	1975
635 640 645	
CTT TTA TCA TTT GCA TAT GAT CTA GAA GCA AAA GCA AAC AGT TTG CCC Leu Leu Ser Phe Ala Tyr Asp Leu Glu Ala Lys Ala Asn Ser Leu Pro	2023
650 655 660	
CCA GGA AAT TTG AGG AAC TCC CTG AAA AGA GAT GCA CAA ACT ATT AAA Pro Gly Asn Leu Arg Asn Ser Leu Lys Arg Asp Ala Gln Thr Ile Lys	2071
665 670 675	
ACA ATT CAC CAG CAA CGA GTC CTT CCT ATA GAA CAA TCA CTG AGC ACT Thr Ile His Gln Gln Arg Val Leu Pro Ile Glu Gln Ser Leu Ser Thr	2119
680 685 690	
CTA TAC CAA AGC GTC AAG ATA CTT CAA CGC ACA GGG AAT GGA TTG TTG Leu Tyr Gln Ser Val Lys Ile Leu Gln Arg Thr Gly Asn Gly Leu Leu	2167
695 700 705 710	
GAG AGA GTA ACT AGG ATT CTA GCT TCT CTG GAT TTT GCT CAG AAC TTC Glu Arg Val Thr Arg Ile Leu Ala Ser Leu Asp Phe Ala Gln Asn Phe	2215
715 720 725	

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FIG.12-4

ATC ACA AAC AAT ACT TCC TCT GTT ATT ATT GAG GAA ACT AAG AAG TAT	2263
Ile Thr <u>Asn Asn Thr Ser</u> Ser Val Ile Ile Glu Glu Thr Lys Lys Tyr	
730 735 740	
GGG AGA ACA ATA ATA GGA TAT TTT GAA CAT TAT CTG CAG TGG ATC GAG	2311
Gly Arg Thr Ile Ile Gly Tyr Phe Glu His Tyr Leu Gln Trp Ile Glu	
745 750 755	
TTC TCT ATC AGT GAG AAA GTG GCA TCG TGC AAA CCT GTG GCC ACC GCT	2359
Phe Ser Ile Ser Glu Lys Val Ala Ser Cys Lys Pro Val Ala Thr Ala	
760 765 770	
CTA GAT ACT GCT GTT GAT GTC TTT CTG TGT AGC TAC ATT ATC GAC CCC	2407
Leu Asp Thr Ala Val Asp Val Phe Leu Cys Ser Tyr Ile Ile Asp Pro	
775 780 785 790	
TTG AAT TTG TTT TGG TTT GGC ATA GGA AAA GCT ACT GTA TTT TTA CTT	2455
Leu Asn <u>Leu Phe Trp</u> Phe Gly Ile Gly Lys Ala Thr Val Phe Leu Leu	
795 800 805	
CCG GCT CTA ATT TTT GCG GTA AAA CTG GCT AAG TAC TAT CGT CGA ATG	2503
Pro Ala <u>Leu Ile Phe Ala Val Lys</u> Leu Ala Lys Tyr Tyr Arg Arg Met	
810 815 820	
GAT TCG GAG GAC GTG TAC GAT GAT GTT GAA ACT ATA CCC ATG AAA AAT	2551
Asp Ser Glu Asp Val Tyr Asp Asp Val Glu Thr Ile Pro Met Lys Asn	
825 830 835	
ATG GAA AAT GGT AAT AAT GGT TAT CAT AAA GAT CAT GTA TAT GGT ATT	2599
Met Glu Asn Gly Asn Asn Gly Tyr His Lys Asp His Val Tyr Gly Ile	
840 845 850	
CAC AAT CCT GTT ATG ACA AGC CCA TCA CAA CAT T GATAGCTGAT	2643
His Asn Pro Val Met Thr Ser Pro Ser Gln His	
855 860 865	
GTTGAACTG CTTGAGCATC AGGATACTCA AAGTGGAAAG GATCACAGAT TTTTGGTAGT	2703
TTCTGGGTCT ACAAGGACTT TCCAAATCCA GGAGCAACGC CAGTGGCAAC GTAGTGACTC	2763
AGGCGGGCAC CAAGGCAACG GCACCATTGG TCTCTGGGTA GTGCTTTAAG AATGAACACA	2823
ATCACGTTAT AGTCCATGGT CCATCACTAT TCAAGGATGA CTCCCTCCCT TCCTGTCTAT	2883
TTTTGTTTTT TACTTTTTTA CACTGAGTTT CTATTTAGAC ACTACAACAT ATGGGGTGGT	2943
TGTTCCCATTT GGATGCATTT CTATCAAAAC TCTATCAAAT GTGATGGCTA GATTCTAACA	3003
TATTGCCATG TGTGGAGTGT GCTGAACACA CACCAGTTTA CAGGAAAGAT GCATTTTGTG	3063
TACAGTAAAC GGTGTATATA CCTTTTGTTA CCACAGAGTT TTTTAAACAA ATGAGTATTA	3123
TAGGACTTTC TTCTAAATGA GCTAAATAAG TCACCATTGA CTTCTTGGTG CTGTTGAAAA	3183
TAATCCATTT TCACTAAAAG TGTGTGAAAC CTACAGCATA TTCTTCACGC AGAGATTTTC	3243
ATCTATTATA CTTTATCAAA GATTGGCCAT GTTCCACTTG GAAATGGCAT GCAAAAGCCA	3303
TCATAGAGAA ACCTGCGTAA CTCCATCTGA CAAATTCAAA AGAGAGAGAG AGATCTTGAG	3363
AGAGAAATGC TGTTCGTTCA AAAGTGGAGT TGTTTTAAACA GATGCCAATT ACGGTGTACA	3423

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FIG.13

